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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/633,275	08/04/2000	Wieslaw Jerzy Szajnowski	0054-0217P-SP	2168

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EXAMINER	
AHN, SAM K	

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 03/26/2004

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/633,275	SZAJNOWSKI, WIESLAW JERZY	
	Examiner	Art Unit	
	Sam K. Ahn	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *pre-amendment, received on 8/4/00*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 August 2000* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because it is not necessary to state the figure to be published. Correction is required. See MPEP § 608.01(b).

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
(e) BACKGROUND OF THE INVENTION.

(1) Field of the Invention.
(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.
(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(h) DETAILED DESCRIPTION OF THE INVENTION.
(i) CLAIM OR CLAIMS (commencing on a separate sheet).
(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

Claim Objections

4. Claims 9-12, 15 and 16 are objected to because of the following informalities:

In claims 9-11, line 1, delete "wherein" and insert "wherein said".

In claim 11, line 2, delete "one of the preliminary signal" and insert "one further preliminary signal".

In claim 12, line 2, delete "said one" and insert "said one further".

In claim 15, please specify to which the claim is depending on. For this instant Office Action, claim 15 will be treated as depending on claim 1.

In claim 16, line 9, delete "a random" and insert "the random".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 16, lines 6 and 10, respectively, recite "the events" and "said events". The claims previously recite events from a first preliminary signal and from at least one further preliminary signal, and therefore, it is unclear and indefinite as to which events the limitation is referring to.

Claim 11 recites the limitation "the preliminary signals" in lines 2-3. There is insufficient antecedent basis for this limitation in the claim. It is unclear and indefinite as to whether the preliminary signals refers to *both* first preliminary signal and at least one further preliminary signal or refers to *only* the at least one further preliminary signal.

Claim 12 recites the limitation "the time delay" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim 14 recites the limitation "the number of preliminary signals" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. It is unclear and indefinite as to whether the preliminary signals refers to *both* first preliminary signal and at least one further preliminary signal or refers to *only* the at least one further preliminary signal.

Claims 2-10, 13 and 15 directly or indirectly depend on claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-10 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Albers et al. (Albers, cited in IDS, paper no.6).

   Regarding claims 1 and 16, AAPA discloses a method and apparatus of generating a random binary waveform containing events which occur at random intervals, comprising a physical noise source containing events occurring asynchronously and at random intervals, producing a random output signal. (see PNS in Fig.1, and note p.2, lines 17-25) AAPA further teaches zero-crossing detector (ZCD in Fig.1), means for deriving, coupled to receive output of PNS. However, AAPA does not teach means for providing at least one further preliminary signal, and means for multiplying. Albers teaches, in the same field of endeavor, plurality of physical noise source. (see 250, 270 in Fig.2) wherein 250, the physical noise source, along with 270, means for providing at least one further preliminary signal, are multiplied by the means for multiplying, 300, multiplying the physical noise source and the output of the means for providing at least one further preliminary signal, and producing the random binary waveform, 310, in which said events are interspersed. (note col.2, line 59 – col.4, line 62)

invention to modify AAPA's disclosure by introducing another physical noise source coupled to the first physical noise source through an ex-or gate, as taught by Albers, and produce random signal for the purpose of generating a signal resembling closer to a true white noise distribution characteristic than having a single physical noise source, as taught by Albers. (note col.1, lines 44-54)

Regarding claim 2, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. As previously explained, AAPA discloses wherein the first preliminary signal is derived by level-detecting (ZCD in Fig.1) a random amplitude analog signal produced by the PNS.

Regarding claim 3, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. Albers teaches two pseudo random bit sequence generators having equivalent in function. (see 250 and 270 in Fig.2) And therefore, by introducing another PNS, means for providing at least one further preliminary signal, as explained above, it is inherent that in order to properly multiply the outputs from the two, the means for providing at least one further preliminary signal would inherently contain a level detector as equivalent to the physical noise source in order to properly detect the random amplitude analog signal for multiplication.

Regarding claim 4, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. As the outputs of the two level detectors are analog, it is inherent that the multiplication performed, rather than the ex-or gate, performs an analog multiplication. One skilled in the art would be able to generate analog signal through PNS taught by AAPA, or generate digital signal through 250 and 270 in Fig.2, and therefore, it would have been a matter of design choice for one skilled in the art to either generate analog and digital signal. If one were to generate an analog signal, it would inherently comprise an analog multiplier to multiply the two analog signals.

Regarding claims 5 and 6, Regarding claim 3, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. Albers further teaches wherein the preliminary signals are binary signals which are combined by binary multiplication, an exclusive-or operation. (300 in Fig.2) One skilled in the art would be able to generate analog signal through PNS taught by AAPA, or generate digital signal through 250 and 270 in Fig.2, and therefore, it would have been a matter of design choice for one skilled in the art to either generate analog and digital signal. If one were to generate a digital signal, it would inherently comprise the binary multiplication to multiply the two digital signals.

Regarding claims 7-9, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. It is inherent that the physical noise source produces a

non-deterministic output as the teachings of both AAPA and Albers are to produce a random sequence, chaotic output, or a pseudo-random binary sequence. (note abstract of Albers)

Regarding claim 10, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. Albers further discloses at least one further preliminary signal is a pseudo random bit sequence generator (270) outputting a chaotic signal.

Regarding claim 13, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. Albers further teaches wherein the pseudo random bit sequence generator (250) may be coupled to a low pass filter or a spectral filter, filtering low frequency. (note col.1, lines 14-17)

Regarding claim 14, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. Albers further teaches that the number of pseudo random bit sequence generator (250) may be even two or more, (note col.5, lines 39-42) which may be equal to three or four.

Regarding claim 15, AAPA in view of Albers teach all subject matter claimed, as applied to claim 1. AAPA further discloses that the generation of binary waveform may be applied in a radar and communications. (note p.1, lines 16-17) Therefore, it would have been obvious to one skilled in the art at the time of the

invention to implement the combined teaching of AAPA and Albers in a radar system and measure the delay between the transmitted and received signal to detect any object, as this is well-known in the art.

Allowable Subject Matter

7. Claims 11 and 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, and claim objections, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter: Present application discloses generation of pseudo noise which may be implemented in a radar system. Applicants disclose wherein the pseudo noise generator comprises physical noise source providing a first signal, means for deriving the first signal, means for providing another signal and means for multiplying the two signals. Closest prior art, Albers teaches, in the same field of endeavor, all the elements claimed by applicants above. However, Albers does not teach or suggest in combination wherein the second signal is a delayed version of the first signal in order to be multiplied to produce a random binary waveform. Therefore, prior art does not teach or suggest in combination all the limitation claimed.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cellai et al. and Nagazumi teach generation of pseudo noise in a radar system.

Szajnowski et al., by the common applicant, discloses time delay determination in a radar system.

Matthews teaches correlation of zero when multiplying pseudo random sequence with a delayed version of itself.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Sam Ahn** whose telephone number is **(703) 305-0754**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Stephen Chin**, can be reached at **(703) 305-4714**.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

P.O. Box 1450

Alexandria, VA 22313-1450

or faxed to:

(703) 872-9306

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Sam K. Ahn
3/22/04

YOUNG T. TSE
PRIMARY EXAMINER